



ISSN 2456-3110

Vol 5 • Issue 6

Nov-Dec 2020

# Journal of **Ayurveda and Integrated Medical Sciences**

*www.jaims.in*

# JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



**Charaka**  
Publications

Indexed

## Review article on *Kwatha Kalpana*

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### ABSTRACT

*Kwatha Kalpana* is the most significant and widely used dosage form in *Ayurvedic* pharmaceuticals. It is one among basic *Panchvidh Kashaya Kalpana* of *Bhaishajya Kalpana*. It is a basis of preparatory method of other secondary dosage form such as *Snehapaka*, *Sandhana Kalpana*, *Avleha* etc. So to get good quality of this dosage form *Kwatha* should be of standard quality. To obtain good quality of *Kwatha* it's very important to concentrate on its pharmaceutical factors such as temperature, vessel for preparation, quantity of water, particle size of raw drugs, duration of heating.

**Key words:** *Kwatha*, *Panchvidh Kashaya Kalpana*, *Dosage form*, *Ayurvedic pharmaceuticals*.

### INTRODUCTION

*Ayurveda* is an ancient science of treatment with holistic approach and minimal adverse drug reaction. *Bhishak*, *Aushadhravya*, *Rugna*, *Paricharak* are described as *Chikitsa Chatushpada* in *Samhita* among which *Aushadh Dravya* is integral part of treatment. *Aushadh* can be administered in many forms as per state of *Atura* and *Vyadhi*. *Panchvidh Kashaya Kalpana* are the basic formulations of *Ayurvedic* pharmacy i.e., *Swarasa*, *Kalka*, *Kwatha*, *Hima*, *Phanta*. *Kwatha Kalpana* is the most significant and widely used dosage form in *Ayurvedic* pharmaceuticals.

### Synonyms

In *Ayurveda* *Kashaya*, *Shruta*, *Niruha* are synonym words have been used in different classics for *Kwatha*.

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Submission Date: 17/11/2020 Accepted Date: 13/12/2020

### Access this article online

#### Quick Response Code



Website: [www.jaims.in](http://www.jaims.in)

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### Nirukti

The word *Kashaya* generally refers to *Kashaya Rasa* (astringent taste). 'Ka' denotes *Kaya* - *Sharir* (body), 'Sha' denotes functions, 'Ya' denotes appropriate regulation. *Kashaya* means the one that helps to regulate body functions or helps maintain equilibrium.<sup>[1,2]</sup>

### Definition

*Kwatha* is medicinal preparation in which coarsely powdered medicinal drug is boiled in sixteen times of water until residual portion of liquid is reduced to one eighth of entire matter and is filtered. The filtered liquid is termed as *Kwatha*.<sup>[3]</sup>

### Standards for *Kwatha* Preparation

#### Proportion of Water

In *Kwatha Kalpana* proportion of water is important factor. *Kwatha* is prepared by boiling one part of herb with sixteen parts of water in an open vessel on mild fire till it reduces to one eighth of original quantity.<sup>[4]</sup> The quantity of water may be four times, eight times or sixteen times the quantity of herb. This variation in the amount of water depends on hardness of drug used i.e., *Mrudu*, *Madhyam*, *Kathina Dravya*.

In *Mrudu Dravya* water is taken four times as herb. Likely, in *Madhyam Dravya* water is taken eight times and in *Kathina Dravya* water is taken to sixteen times the herb.

In *Sharangdhar Samhita*, Acharya has mentioned different ratio of water and drug particularly for *Sneha Kalpana*.<sup>[5]</sup>

Different proportions of water mentioned in classic depend on hardness as well as quantity of the drug used. Different Acharya explained different ratio of water and drug.

The ratio of drug and water with reference to its quantity by weight is also explained in *Sharangdhar Samhita*.

**Table 1: Shows proportion of Kwathaya Dravya and water**

Quantity of Kwathaya Dravya	Quantity of water
1 Masha - 1 Pala	16 times of water
Above 1 Pala upto 1 Kudav	8 times of water
Above 1 Kudav upto 1 Prastha	4 times of water
Above 1 Prastha upto 1 Khary	4 times of water

### Vessel

Vessel used should be non-reactive to drugs. Vessel imparts a specific role in *Kwatha* preparation. Earthen pots are mentioned in classics having qualities such as temperature regulation, doesn't take part with chemical reaction with ingredients which are under processing.<sup>[6]</sup> Vessel should be kept open throughout boiling process. Intermittently use the ladle to stir *Kwatha*.<sup>[7]</sup> Nowadays stainless steel vessels are used due to easy availability, less costly and easy for maintenance hence preferred often.

### Temperature

Regulation of temperature protects heat labile phyto constituents.<sup>[8]</sup> *Madhyamagni* is term used to denote mild to moderate heat in preparation of *Kwatha*. Temperature holds the significant factor in preserving thermolabile constituents. Therefore during the preparation of *Kwatha*, temperature should be maintained 85°-90°C.<sup>[9]</sup>

### Particle Size

Mostly *Yavkut Churna* (coarse powder) is used. Particle size reduction is another important factor for *Kwatha*. Less the particle size more will be the surface

area which ultimately encourages phyto constituents to enter in the solvent i.e, water and vice versa.

*Panchbhautik* properties of *Kwatha* - *Shabda, Sparsha, Roop, Rasa, Gandha*

### Organoleptic Evaluation

Organoleptic characters like color, odour, taste, and consistency of *Kwatha* can be evaluated.

Different physical parameters can be evaluated using standard pharmacopoeial methods.

1. Specific gravity
2. p<sup>H</sup> value
3. Water soluble extractive value
4. Alcohol soluble extractive value

### Analytical Study of Kwatha

Qualitative and Quantitative analysis is important aspect of standardization of *Kwatha*. Standardization of *Kwatha* were achieved by physico-chemical analysis, qualitative inorganic and organic analysis, thin layer chromatography (TLC), UV-visible spectrophotometer and high performance liquid chromatographic (HPTLC) fingerprint studies.<sup>[10]</sup> Qualitative tests are used to detect the presence of functional group, which plays important role in the expression of biological activity such as presence of tannins, mucilage, ascorbic acid, saponins etc.<sup>[11]</sup> HPTLC is a more convenient and simple procedure in which finger printing profile is available in the form of graph and densitogram.

### Dose of Kwatha

1. *Sharangdhar* - 2 Pala
2. *Bhavprakash*
  - a) *Uttammatra* - 1 Pala
  - b) *Madhyammatra* - 3 Karsha
  - c) *Adhammatra* - 2 Karsha
3. *Sushruta* - 1 Anjali = 4 Pala
4. *Vangasen* - 4 Pala
5. *Vrindamadhav* - 1 Pala

**Savirya Avadhi**

Saviryaavdhi of Kwatha Kalpana is 1 Prahar i.e., 3 hrs.

**Preservatives**

The shelf life of decoction is very small, and it is advised that to be used immediately after preparation. It cannot be preserved for a longer duration. Therefore, it becomes necessary to use the preservatives which are inert and could maintain drug potency for a longer period. Though there are many such preservatives available, sodium benzoate is preferred for the industrial production.

**Prakshepa**

Prakshepa Dravya added to Kwatha increases palatability and therapeutic efficacy.

**Prakshepa Dravyas of Kwatha and their quantity**

- Sita should be added in Kwatha either in 1/4<sup>th</sup>, 1/8<sup>th</sup> or in 1/16<sup>th</sup> part depending upon Vata, Pitta and Kapha type of disease.<sup>[12]</sup>
- If Madhu is to be added then its quantity should be 1/4<sup>th</sup> for Kaphaja, 1/8<sup>th</sup> for Pittaj and 1/16<sup>th</sup> for Vataj disorders.<sup>[12]</sup>
- Jiraka, Guggulu, Kshara, Lavana, Shilajatu, Hingu and Trikatu should be added in one Shana (3gm) quantity.
- Kshir, Ghrita, Guda, Taila, Mutra, Kalka, Churna, Kalka etc. should be added in one Karsha (12gm) quantity.<sup>[13]</sup>

**Upkalpana of Kwatha** - Pramathya, Kshirpak, Ushnodak.

Haarita Samhita has mentioned total 7 types of Kwatha, viz. Pachana, Deepana, Shodhana, Shamana, Tarpana, Kledana, Shoshana.<sup>[14]</sup>

**Table 2: Shows types of Kwatha according to Haarita Samhita.**

SN	Type of Kwatha	Proportion of reduction	Time of administration
1.	Pachana	½	Nisha

2.	Deepana	1/10 <sup>th</sup>	Aparhana
3.	Shodhana	1/12 <sup>th</sup>	Suryodyatpurve
4.	Shamana	1/8 <sup>th</sup>	Poorvhane
5.	Tarpan	Equal	Prabhate
6.	Kledana	1/4 <sup>th</sup>	Prabhate
7.	Shoshana	1/16 <sup>th</sup>	Nishite

**Advancement in Kwatha Kalpana****1. Ghana**

Rasakriya or Ghana is concentrated dosage form, which is a modification of Kwatha Kalpana. It is prepared by boiling the Kwatha till semisolid form is attained and then drying it to solid state.<sup>[15]</sup>

**2. Syrup**

For preparation of syrup, initially, decoction is prepared by taking drug and adding 8 times water and boiled until total volume becomes one-fourth of the initial volume. Then, the decoction was cooled and filtered. Filtrate was taken to prepare final herbal syrup and adding sugar in the concentration of 66.7% and the mixture is boiled up to 1-2 thread consistency.<sup>[16]</sup>

**3. Pravahi Kwatha**

It is formulated by fermentation process and can be understood as the secondary formulation of decoction prepared by adding sweetening and fermenting agent.<sup>[17]</sup>

**DISCUSSION**

Panchvidh Kashaya Kalpana are basic Kalpana of Bhaishajya Kalpana.<sup>[18]</sup> All other Kalpana are derivatives of these Kalpana. Kwatha forms base of various Ayurvedic formulations like Asava-Arishta, Taila, Ghrita, Avleha etc. Kwatha is used internally for drinking or for medicated enemas or externally for eye wash or Swedana purpose. Kwatha is one of the most used dosage forms among all primary pharmaceutical preparation of Ayurvedic

pharmaceutics with a wide range of therapeutic usage.

The standardization of *Ayurvedic* classical dosage forms has been an area of academic, research, industrial and regulatory interests. Due to globalization, development in its different dosage form is needed without compromising the therapeutic efficacy. The dosage form is being modified and improved from decoction (liquid) to *Kashaya* powder, *Rasakriya*, *Ghana*, tablets, capsules, syrup, and *Pravahi Kwatha*. This conversion has many advantages over *Kwatha* preparation, i.e., acceptability and prolongs shelf life.

## CONCLUSION

*Kwatha* is the potent therapeutic preparation of liquid form containing water soluble constituents responsible for therapeutic activity. *Kwatha Kalpana* is one of the most significant and efficacious dosage forms in *Ayurvedic* pharmaceutics. *Kwatha Kalpana* frequently referred to as decoctions - aqueous extraction of a group of herbs, is one of the most commonly used classical dosage forms where the therapeutic attributes are extracted from the group of botanicals into water, with the use of heat.

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**How to cite this article:** Dr. Baban Rathod, Dr. Shardul Chavan, Dr. Prajakta Arote. Review article on Kwatha Kalpana. J Ayurveda Integr Med Sci 2020;6:220-223.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

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